

ABSTRACT OF THE DISCLOSURE

5 A charged particle beam exposure system comprising: a  
charged particle beam emitting device which generates charged  
particle beams with which a substrate is irradiated, the charged  
particle beam emitting device generating the charged particle  
beams at an accelerating voltage which is lower than that at which  
an influence of a proximity effect occurs; an illumination  
optical system which adjusts a beam diameter of the charged  
particle beams so that density of the charged particle beams is  
10 uniform; an character aperture in which an aperture hole is formed  
in a shape corresponding to a desired pattern to be written; a  
first deflector which deflects the charged particle beams by an  
electrostatic field that the charged particle beams have a desired  
sectional shape and travel towards a desired aperture hole and  
15 which returns the charged particle beams passing through the  
aperture hole to an optical axis thereof; a reducing projecting  
optical system which forms a multi-pole lens field so that the  
charged particle beams passing through the character aperture  
substantially reduce at the same demagnification both in X and  
20 Y directions when the optical axis extends in Z directions and  
form an image on the substrate without forming any crossover  
between the character aperture and the substrate; and a second  
deflector which deflects the charged particle beams passing  
through the character aperture by means of an electrostatic field  
25 to scan the substrate with the charged particle beams.

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